Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1. An ultrasonic vein detector for detecting the position of a vein in a specific part of an examinee comprising:
an ultrasonic emitter having an oscillator for generating indicative pulse ultrasonic signals toward the examinee;
a pulse presser for applying pulse stress signals to the part of the examine, wherein the frequency of the signal is different from the heartbeat frequency of the examinee;
an ultrasonic sensor for sensing the back waves which is the reflection of the indicative pulse ultrasonic signals hitting every reflecting point of the part of the examinee, and converting them into electrical signals; and
a microprocessor for receiving the electrical signals from the ultrasonic sensor and calculating the Doppler shift of the electrical signals generated from the back waves in order to find the reflecting points corresponding to the pulse stress signals.

[c2] 2. The ultrasonic vein detector of claim 1 further comprising a storage for storing the electrical signals outputted by the ultrasonic sensor.

[c3] 3. A method for detecting the position of a vein in a specific part of an examinee by ultrasonic waves comprising:
(a) emitting an indicative pulse ultrasonic signal toward the examinee from an emitting point;
(b)applying pulse stress signals on the examinee, wherein the frequency of the pulse stress signals is different to the frequency of the pulse ultrasonic signal and the heartbeat of the examinee ;
(c)sensing a back wave which is the reflection of the indicative pulse ultrasonic signals hitting from the part of the examinee and converting it into an electrical signal; and
(d)calculating the Doppler shift of the electrical signal generated from the back wave in order to find the reflecting point corresponding to the pulse stress signal.

[c4] 4. The method of claim 3 wherein the pulse stress signal is non-periodical.

[c5] 5. The method of claim 4 wherein in step (d) a time interval between the emitting the indicative pulse ultrasonic signal and sensing the back wave is recorded and the time interval is multiplied by the ultrasonic transmission speed in order to obtain the interval distance between a reflecting point and an emitting point.